“Can I play ball, too?” Using echolalia for increasing ASD youth verbal/non-verbal expressive/receptive communication through culturally competent action research using play/sensory therapies.

A study by

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Abstract:

Purpose: Black and LatinX youth diagnosed on the autism spectrum experience higher incidence of expressive communication delay and so this study examines culturally competent techniques for expanding ASD youth verbal/non-verbal expressive/receptive communication leveraging echolalia using action research methodology with play/sensory therapies.

Method: This 1.5 year study followed the progress of five ASD youths. It used licensed professional counselor (LPC), culturally competent action research infused with play/sensory therapies to identify ways this vulnerable population can enjoy enhanced verbal/non-verbal expressive (speaking)/receptive (listening) communication.

Results: using a weighted average across all five youth, this study indicated a fully 61% increase in abilities. The success rate examined the number of times in ten youth successfully used verbal/non-verbal expressive/receptive communication at both the outset and at the finish of the study.

Introduction

Evans (2013) chronicled the history of ASD noting Eugen Bleuler provided the name "autism" in 1911. Patra and De Jesus (2022) noted Kanner first used "echolalia" in 1943. Pruccoli, Spadoni, Orsenigo, and Parmeggiani (2021) explained DSM V stated echolalia is not an important aspect of communication development, however these authors disagreed. Becerra, von Ehrenstein, Heck, Olsen, Arah, Jeste, Rodriguez, Ritz (2014) observed LatinX and Black ASD youth experience higher incidence of expressive communication delay.

This current study agrees with Pruccoli, et al. (2021) that echolalia is important to expressive communication as well as non-verbal expressive, verbal (and non-verbal receptive communications. This study follows five youth to address the research question: how can Stringer's (2007) action research design incorporate play/sensory therapies and cultural competence to emphasize the value of echolalia for youth verbal/non-verbal expressive and receptive language development?

This study describes: methods; participants; defines echolalia as a strength; play and sensory therapy interventions: data collection; results for verbal/non-verbal receptive communication; results for verbal/non-verbal expressive communication. Finally, the study provides discussion; limitations and a conclusion**.**

Methods: Action Research Design

This study was designed by a committee: the clinician, the five youths and their caregivers. This study used Stringer's (2007) notions of action research which began with construction of hermeneutic dialectic processes in a literal and metaphoric sense. For example, sessions took place only in Spanish when this was the caregiver native language. At all points of this study, and in keeping with Stringer's (2007) seminal work, the clinician served only as facilitator, not leader.

youth progress was characterized by the number of times out of ten that the youth successfully utilized verbal/non-verbal expressive and receptive communication. Throughout the study, clinician adhered to Sue and Sue (2003) multicultural competency notions of: awareness of the power dynamic, empowering the youth (and caregivers), identifying with the youth/caregivers to see the study through a group, not individualistic, lens since 100% of participants identified as non-white.

This study lasted 1.5 years and provided each youth/familywith two hours of weekly therapy. Sessions centered around family life maintenance activities, life skills training, self-regulation. In other words, sessions had multiple simultaneous foci which introduced opportunities to work on verbal/non-verbal receptive and expressive language skills.

Methods: Community involvement

This participatory research study involved these stakeholders: mothers, fathers, grandmothers etc. and the five youth aged 6-16. In all five cases, initial sessions consisted of families identifying their most cherished values, ideas and concerns to create a good foundation. Next, families dentified what venues and activities could feel best, and each youth identified rewards for communication in the four areas: verbal/non-verbal expressive and receptive communication. The youths actively participated in identifying positive rewards they desired as a result of engaging in the four types of communicaiton. Though the clinician identified echolalia as a jumping off point for youths to master verbal/non-verbal expressive and receptive communication, the families identified the activities, or the study design. The clinician measured how many times out of ten the youths executed the four types of communication each session, then collated the numeric results.

The caregivers and youth identified the types of play and sensory therapy that worked best for the youths which produced these results. The caregivers interpreted the results, as measured

against their own bespoke goals as described herein. All families preferred to remain anonymous and clinician honors these requests with great gratitude.

Participants

Youth	Age	Ethnicity	gender	echolalia
1	11	Black	male	yes
2	8	LatinX	male	no
3	11	LatinX	male	yes
4	6	LatinX	male	yes
5	16	Middle east	male	yes

Table one above describes the five participants' age at the study outset, ethnicity, gender, and whether they presented with echolalia. All five youth were male. Youth one was 11 years old. He and his parents were Black and all were born in the United States. Youth two was eight, identified as LatinX and youth two never communicated verbally before or during the study.

Youth three was 11, born in the United States though his parents immigrated from Portugal and Dominican Republic, respectively. Youth three engaged in echolalia. Youth four and his mother were born in the United States and were of Dominican heritage. The youth's maternal grandmother still lived in the Dominican Republic though she visited several times during the study and gave therapy goal input. Youth three was quite verbal, he stimmed and was given to meltdowns which his mother attributed to frustration around inability to communicate his thoughts and feelings. Youth five was 16, he and his parents were born in Egypt, and came to the United States when the youth was a baby. Youth five was echolalic.

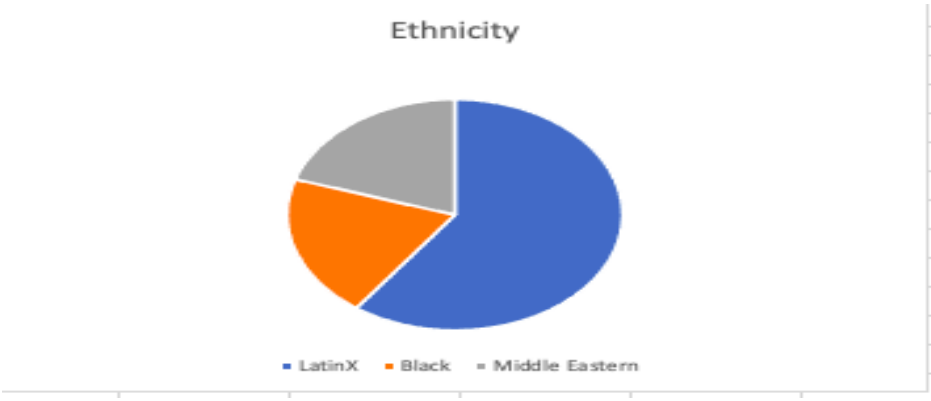

Figure one above describes the ethnicity of the youth. Becerra, et al., (2014) reported Black and LatinxX youth experience the most prevalent expressive verbal communication delays. In keeping with national ASD averages, three of the five youth were of LatinX heritage and one youth was a Black and the fifth youth was of middle eastern descent.

Echolalia as a strength

Tuchel (2022) pointed out there are two types of echolalia: immediate and delayed. Immediate echolalia is when the youth immediately repeats word(s) or sentence(s). Delayed echolalia is repeating word(s) or sentence(s) after the fact. Emerson and Deardon (2013) observed low expectations can result in poor performance. The current study values and utilizes all communication acts as meaningful aspects of developing communication. For example, youth on the spectrum benefit greatly when adults and peers communicate as they normally would, instead of using economy of language.

Bennie (2022) observed small steps are the best teaching method. As with all therapy, the hard work really occurred between sessions when caregivers and youths would work together. For example, if youth number three climbed onto the kitchen counter, the caregiver could say, “get down and have snacks.” In other words, positive support empowers the youth to have a sense of

agency. The youths in the study had the chance to make a connection between successful communication and a reward.

Bennie (2022) identified two ways ASD youth can use echolalia to benefit. First, youth can repeat phrases to stim, or self-soothe. It can be noted all people stim, not just those on the autism spectrum. For example, typically developed adults can stim by tapping a foot anxiously, or twirling hair, etc. Second, ASD youth can use pre-memorized phrases to express themselves. Anyone who has quoted great literature can attest to the efficacy of this communication technique. Prizant and Fields-Meyer (2016) observed positively framing echolalia can replace pathologizing..

The current study used echolalia as a jumping off point. Over time, youths learned more subtle nuances. For example, distinctions between “I” and “you” and “we” and “they” pronouns took place over time. As with learning which phrases to use when, youth likewise learned pronouns and proper use. Transitions can be difficult, but slow, consistent application of these principles can produce good results.

The sections that follow outline interventions tailored to each youth and families' needs, priorities, goals per their instructions. It can be noted at the outset that youths two, three, and four received therapy in their native language, Spanish. Shiri, Pouratemad, Fathabadi, and Narimani, (2020) noted cultural competence is crucial for everything from building therapeutic alliance to a good prognosis. Understanding youth can engage in echolalia in English and in their native language is important.

Bennie (2022) made the important observation that her own child could memorize and repeat entire television programs. This aspect of the autism diagnosis supports observations by Tuchel (2022) that echolalia can be conceptualized quite possibly be reconceptualized as a huge

evolutionary step forward for our species. Eidetic and procedural memory can be highly sought after skills in many fields. This is one example of reframing echolalia as a strength.

Intervention one: play therapy

This section describes play therapy interventions for each youth. Youth one focused on using a tablet or a cell phone to watch cartoons. For youth one, an example of verbal receptive communication was the clinician or caregiver asking youth one to rewind, fast forward, start, stop the cartoon. Non-verbal receptive communication included adults motioning to the tablet while the youth held it, to request he play a cartoon. An example of verbal expressive communication was youth one asking for a toy from a pile. An example of non-verbal expressive communication was youth one pointing to a toy on a pile as a way to ask permission to play with it.

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Youth two played catch. One example of verbal receptive communication was clinician/caregiver asking youth two to throw the ball. One example of non-verbal receptive communication was throwing the ball to the youth and expecting him to catch it. It is worth mentioning youth two improved his gross and fine motor skills as a side benefit. At the outset of the study, the clinician threw the ball to youth two. The ball bounced off the youth's head, and the youth's father identified one of his most cherished dreams was playing catch with his son, in the park. Initially, youth two would follow the instruction to throw the ball by taking the ball and positioning it on his leg in such a way that the ball rolled down his leg as if he had thrown it. Later, the youth would perform this same feat letting the ball roll down his shoulder with the same positive result. Youth two's mother identified that she could sit behind youth two, moving his arms to show him how to throw and catch the ball. By the end of the study, youth two played catch,

unassisted. The clinician left the family in the park after our final session. Youth two played catch with hiss father while while mom looked on, smiling.

Youth two never used verbal expressive communication. Youth two never spoke aloud. Beiting and Maas (2021) observed CAS (childhood apraxia of communication) is rarely treated in ASD youth.. One example of non-verbal expressive communication was sign language. During treatment the youth and caregivers learned “yes”, “no”, and “I love you”. The caregivers pointed out signing may have decreased youth two’s meltdowns.

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Youth three’s play therapy was also playing catch. Because one of the caregiver’s most desired goals was to see her son playing with other youths, and because the caregiver had a very packed schedule, sessions took place at the local laundromat. One example of verbal receptive communication was the caregiver asking youth three to play catch with the clinician for five throws. The youth identified laundromat rewards were: feeding coins into: washer, dryer, vending machin, amd change machine. Non-verbal receptive communication for youth three included motioning to these same activities.

Verbal expressive communication for youth three came toward the end of the study. Initially, the youth three uttered words such as “chicken tenders” or “bubbles”. By the end of the study, youth three’s caregiver identified the youth had conquered social anxiety. Youth three could approach a group of his peers at the park and ask, “Can I play ball, too?” Non-verbal expressive communication improved once the youth received training on making and keeping eye contact. Youth three developed a slight hand motion to indicate to peers that he was open to them tossing him the ball.

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Youth four's play therapy was reading aloud and being read to. Youth four'sverbal receptive communication was intact long before the study commenced, and he followed simple and complex instructions at the outset. **Youth four followed instructions to read aloud to the clinician. Youth four had to work harder at mastering non-verbal receptive communication. Like youth three, youth four was able to observe, interpret and react to non-verbal communications more often after he received prompting to make eye contact.

Youth four's verbal expressive communication was likewise intact at the outset of this study. The youth was skilled at communicating what he wanted and needed. As with non-verbal receptive communication, youth four benefited greatly from prompting to look at the speaker. This prompting improved youth four's ability to engage in non-verbal expressive communication.

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At the outset of treatment, it was clear youth five would benefit from exercises to grow his attention span/focus since he would wander out of the room during session. For that reason youth five's play therapy was being seated at a desk and rolling a ball across to the clinician for as long as he would tolerate it. The youth's verbal receptive communication skill was following therapist instruction to roll the ball, and to stop the ball before it rolled off his desk. Non-verbal receptive communication for youth five consisted of the clinician rolling the ball toward the youth with the expectation he would roll the ball back. Initially the ball sailed off the desk many times. Over time the youth's skill and focus grew.

Six months into treatment, the caregiver reported she felt youth five was ready to tackle the goal she most desired him to learn: washing dishes. The caregiver reported she wanted very much for the youth to learn this skill since he would use up all the dish soap daily without ever successfully washing a single dish. Verbal expressive communicaiton was the youth enering hte

room and saying, “dishes?” to the caregiver. Non-verbal expressive communication occurred when the youth would walk into the room holding dish soap as a way to ask permission.

An unexpected side effect was youth five copying the clinician saying, “good job!” For example, when youth five washed a dish, he would shout, “GOOD JOB!” at each dish as he placed it nicely in the drainer. Stubblefield (2021) identified this as a type of interactive echolalia called verbal completion, or repeating the phrase as a part of the act of washing dishes.

Intervention two: Sensory therapy

As in the play therapy section, this section describes each youth’s sensory therapy interventions. Youth one and his mother identified that he responded most to touch. Early in our therapeutic alliance, when the clinician arrived, youth one would lift the clinician over his head, twirl in circles, and happily vocalize. The clinician would share in the happy vocalizing, and sessions could begin once the youth put the clinician down. Youth one’s playful side infused our sessions. Youth one’s mother was an exceptional cook. Everyone agreed the youth chose well identifying his mother’s cooking as a reward.

For all four types of communication, youth one followed both simple and complex instructions most frequently when the clinician placed her hand on youth one’s head. The caregiver practiced assiduously between sessions, putting her hand on her son’s head and coaxing him to ask aloud for the items he pointed at, to say “please” and “thank you”. The same sensory stimuli were used throughout treatment.

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Like youth one, youth two responded most strongly to touch, as evinced by his identified play therapy interventions and rewards: playing ball, hugging and playing with his beloved mother’s hair. Youth two’s verbal, non-verbal receptive communication, as well as his non-verbal

expressive communication attempts were most successful when the youth had a hand placed on his head. Moreover, youth two responded to his mother guiding his hands and arms to perform complex tasks such as throwing the ball. It can be noted youth two responded most favorably when it was his beloved mother's hand. Youth two's verbal expressive communication remained at 0% at the outset and completion of the study.

A second sensory stimulus was the tablet provided by the youth's school. This tablet had Frost's (1984) PECS® preloaded. Over time, the youth made connections between physical items, and pictures of the PECS® on his tablet. The caregiver crafted a more sophisticated goal, using PECS® to guide the youth toward a morning routine where the youth got himself dressed, brushed his teeth, etc.

Walker and Chung (2021) did a comprehensive case study identifying that assistive communication devices can help youth communicate when youth have access to the devices. In addition, the clinician taught youth and parents sign language for "yes", "no" and "I love you". The caregivers reported communicating through sign language decreased the youth's meltdowns in frequency, intensity, and in duration.

Youth two also used touch for non-verbal expressive communication. For example, youth two's mother reported she and her husband were discussing an upcoming family vacation overseas one night. The next morning, the caregiver reported, youth two showed his dazzled parents his tablet with photos of the vacation destination. Interestingly, youth two declined to communicate by writing or typing during this study.

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Youth three's caregiver identified her goals for her son: improving at all four types of communication and decreased social anxiety. The caregiver reported she envisioned her son connecting socially with peers instead of running away from them in fear.

Though we would take a large inflated ball and go to the laundromat for therapy, youth three hid behind the snack vending machine while the clinician stood with a circle of youth, tossing the ball from one youth to the next.

After several months of treatment, youth three slowly accepted doing laundry went hand in hand with playing ball with peers. Over time, youth three could participate standing with one, then two youths between himself and the clinician. As with youth two, youth three grew to understand receptive non-verbal communication meant that when someone throws a ball, it is time to catch it and then throw it.

For verbal expressive communication, youth three immediately shared his potential. For example, during our first session the youth sat on the clinician's lap and slung a companionable arm around her. The clinician sought to test the youth's verbal expressive skills by putting her hand gently on the youth's head and saying, "hello mommy" and asking youth three to repeat. The caregiver wept with joy saying, "he has never spoken directly to me, before." Over time the caregiver learned to redirect the youth in accordance with Glasser and Easley's (2011) nurtured heart approach, always using sound and touch when communicating with her child. Also, over time, the caregiver felt more comfortable and took the reigns, adding phrases to her son's repertoire including, "may I take a bath please?"

It can be noted over the 1.5 year treatment period, youth three grew to understand that sentences which included the phrase, "good job" were a cue for the youth to reply, "thank you." It

can be noted over time the sensory stimulation of a hand on the head grew unnecessary. Youth three began to ask out loud for his chicken tenders instead of pointing, much to the caregiver's delight.

When summer came youth three would walk to the local park, caregiver and clinician in tow. In this environment many youths had a ball. With his newfound skills youth three got the chance to ask, "can I play ball, too?"

The youth had the chance to form some bonds with other youths, to the caregiver's great joy. Caregiver and clinician agreed that youth three mastered non-verbal expressive communication when he gestured with his ball to a group of children, they came over, and the game of catch was afoot.

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Youth four responded primarily to sound paired with touch. His reward was reading aloud to the clinician, or vice versa. The youth also identified his "best reward". Using his plastic microphone he performed the Pitbull (2009) song "I Know You Want Me (Calle Ocho)" for an audience consisting of his parents, the clinician, and his beloved maternal grandmother who would FaceTime the family from the Dominican Republic. As noted in the results, youth four was quite advanced at verbal receptive and expressive communication the outset of the study. Youth four suffered meltdowns where he would hit, kick, yell, cry and the family reported sometimes they just had to wait until the youth "wore himself out".

During session, the youth had one such meltdown. At the clinician request, the youth's father handed the youth an ice cube (repeatedly). The youth's eyes widened and he looked at his parents in stunned and silent surprise. In these moments of surprise the caregiver identified these techniques: changing the subject, suggesting everyone go into a different room, or outdoors could stop youth four's meltdowns. Though youth four was quite receptive to sound paired with touch, it

can be instructive to experiment with the five senses to identify what feels motivating to each individual youth, and indeed what possible new rewards can be culled from stimulating each of the five senses. It can be noted that sometimes these fun experiments can bear repeating over time, since young people are ever-changing.

Youth four's non-verbal receptive and expressive communication improved moderately when the youth began to master the very complex skill of mitigating a flat affect by using smiles, frowns, etc for communicating his feelings.

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Youth five responded to a hand on the head for all four types of communication, in much the same way as other youths. Once each activity was complete, youth number five would receive his most desired reward, celery with peanut butter.

For verbal receptive communication, youth five had a chance to follow simple and complex instructions to reach his goal of learning to wash dishes. The clinician used four of the five senses by attaching meaning to words while using tract training as described by Li and Lee (2022) for teaching the youth to wash dishes. For example, the youth heard: water and talking. The youth touched: drainer. water, dishes, soap. The youth saw: his own hands, water, drainer, dishes, soap. The youth smelled: dish detergent. Taste was not used.

During the activity, the clinician placed her hand gently on the head of youth five when instructing the youth to pick up a dish, wash and place it in the drainer. Non-verbal receptive communication became the shorthand of the clinician handing items to youth five.

Ives (2021) observed recyclable phrases can work best.For example, instead of asking, "do you need to use the bathroom?" it can be possible to use a phrase like, "time to use the bathroom". In this way the youth can have the best chance for success. Over time youths can learn additional

facets. For example, youth five's verbal expressive communication improved with a hand on the head and prompting to repeat "thank you". Over time the youth learned that "good job" indicated he should always say "thank you." As well, youth number five learned that saying "please" resulted in words of praise from caregivers and clinician alike. It can be noted youth number five did not make eye contact at the outset or indeed throughout the study. That meant smiles from adults did not affect the youth since he never observed them.

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Ultimately all five youth moved toward more satisfying relationships with themselves, and the people, places, and things that populate their lives. While each youth had a dominant "sense" which served to move the youth toward goals, the majority of youth responded with greater focus when the clinician placed a hand on top of their heads while prompting them. This important information supports the study by Pruccoli, et al., (2021) which identified echolalia can certainly be conceptualized as a very important aspect of communication development for this population.

Data Collection

Youth	Age	Ethnicity	Gender	Echolalia	VEI*	VEE**	NVEI†	NVEE††	VRI‡	VRE‡‡	NVRI§	NVRE§
1	11	Black	Male	Yes	18%	40%	50%	90%	12%	40%	60%	80%
2	8	LatinX	Male	No	0%	0%	10%	95%	8%	85%	0%	98%
3	11	LatinX	Male	Yes	10%	68%	80%	80%	8%	95%	0%	98%
4	6	LatinX	Male	Yes	80%	80%	10%	70%	75%	80%	40%	60%
5	16	Middle east	Male	Yes	40%	70%	20%	78%	10%	50%	0%	20%

* VERBAL EXPRESSIVE INITIAL
** VERBAL EXPRESSIVE END
† NON VERBAL EXPRESSIVE INITIAL
†† NON-VERBAL EXPRESSIVE END
‡ VERBAL RECEPTIVE INITIAL
‡‡ VERBAL RECEPTIVE END
§ NON-VERBAL RECEPTIVE INITIAL
§§ NON-VERBAL RECEPTIVE END

Data collection took place during sessions, noting the number of times out of ten that each youth participated in verbal/non-verbal expressive/receptive communication. These data are collated in table two, above. Emerson and Deardon (2013) used the term MRO (means, reasons, and opportunities) to communicate. Clinician tracked MRO during weekly sessions to identify the percentage of times youth engaged in verbal/non-verbal expressive/receptive communication.

Results: verbal/non-verbal receptive communication

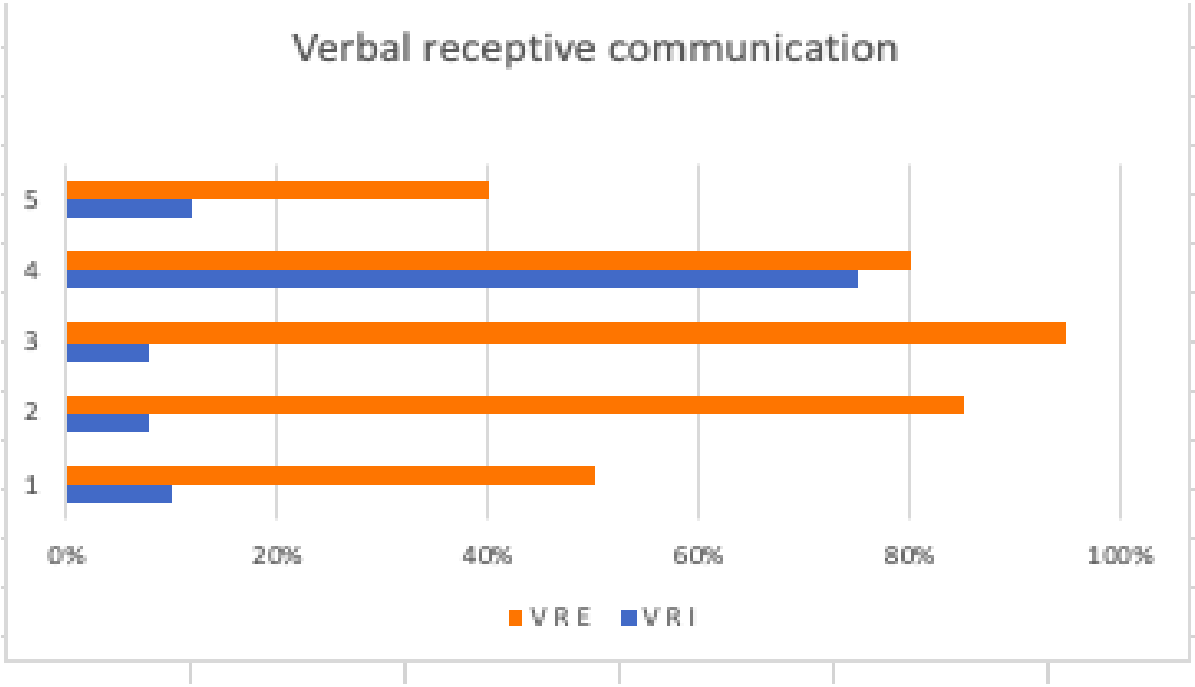


Figure three above illustrates results for verbal receptive communication. Results for each youth at the outset of the study are in blue, and end results are in orange. Youth one was able to follow verbal instructions 12% of the time at the outset, but 40% of the time by the conclusion. Youths two and three followed verbal instructions 8% of the time at the outset and 85% and 95% respectively by the end of the study. Youth four started the study following verbal instructions 75% of the time and he improved his skill to 85% by the study's conclusion. Finally, youth five followed verbal instructions 10% of the time initially and 75% of the time by the end of the study.

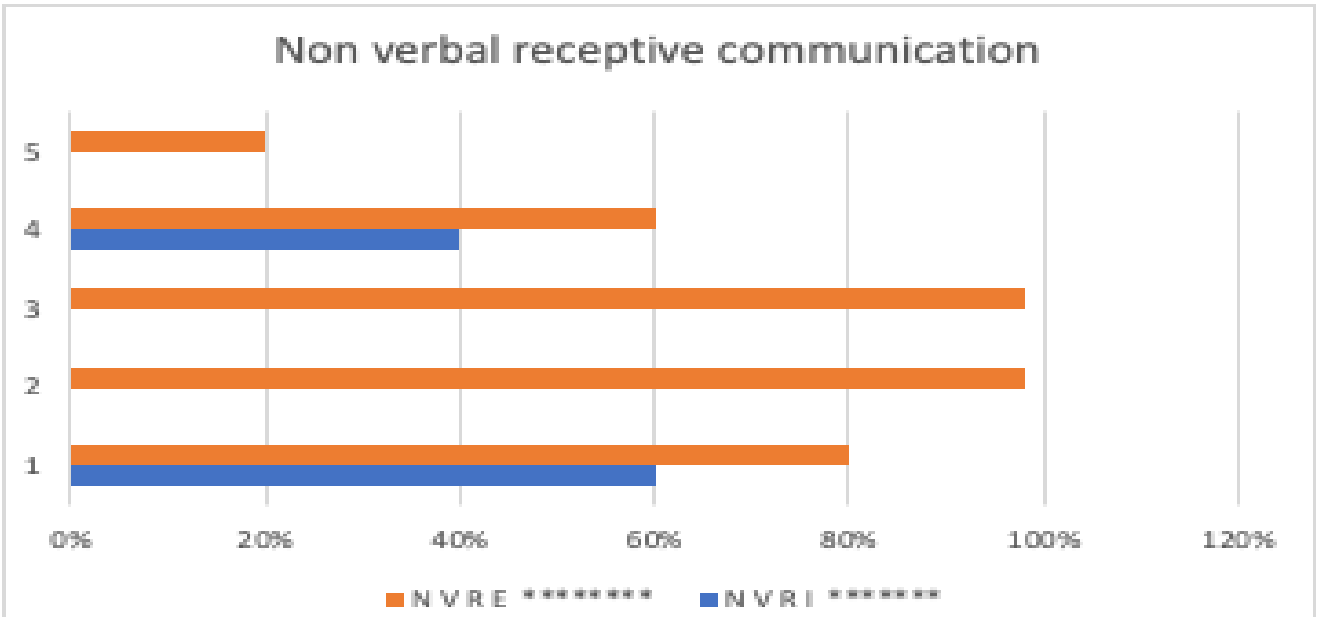


Figure four above likewise uses blue for initial and orange for final results. All five youth fared quite well on non-verbal receptive communication. For example, youth one was initially able to follow non-verbal receptive communication 60% of the time, interpreting non-verbal cues such as pointing and nodding toward a tablet or cell phone and by the end of the study the youth reached an 80% success rate.

In sharp contrast, youths two, three, and five responded to non-verbal receptive communication 0% of the time at the outset, and reached 98%, 98% and 20% respectively,by the conclusion of the study. Youth two accepted items handed to him. His caregivers would get his attention with a hand on his shoulder, followed by pointing to the remote for the youth to bring it, etc. Youth three had the uncanny ability to catch a ball that was bounced to him and throw it back with precision without ever looking at the person throwing the ball, or indeed the ball itself, by the end of the study.

Youth five started at 0% success, but by the end of the study he had a 20% success rate. Youth five responded to a hand on the shoulder to get his attention and he followed the gesture of

"let's go for a walk" where the adult pointed to the door, by the study's conclusion. Youth five responded when his mother would bring dishwashing liquid into his room by enthusiastically reporting to the kitchen for supervised dishwashing duties.

Results: verbal/non-verbal expressive communication

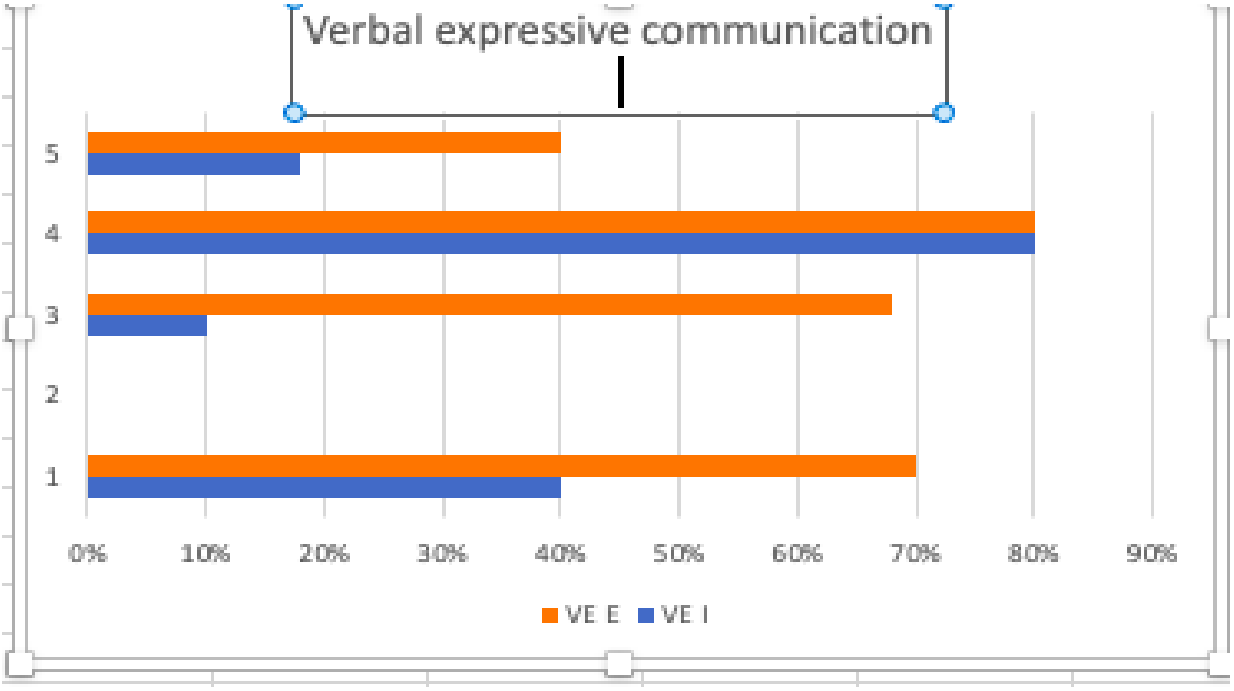


Figure five above, describes verbal expressive communication for each youth. The initial data are expressed in blue and final results are in orange.

Youth one had a baseline of 18% initially and 40% by the finish of the study. Speaking to identify what one wants, needs, thinks, and feels can feel as challenging as maintaining eye contact for many ASD youth. It can be noted youth one had exemplary scores in this area, and this can be attributed as much to his initial baselines as to the hours of love, hard work and patience the caregiver gave to the youth before, during and after the study.

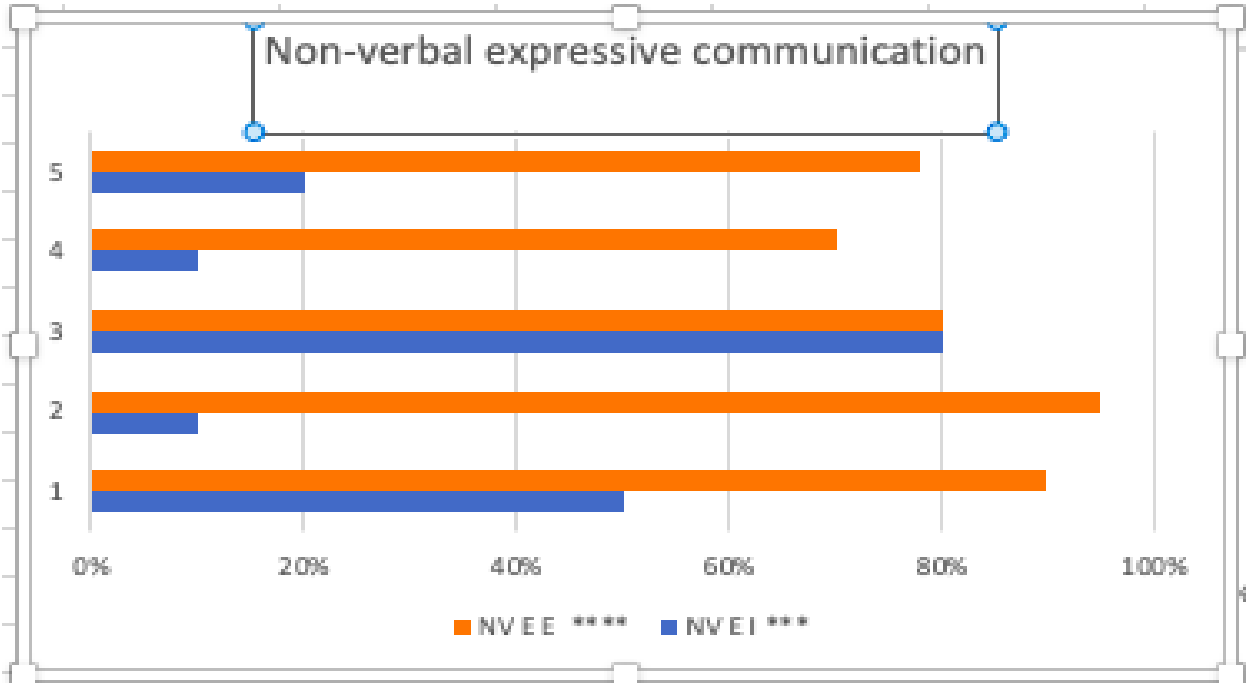
Youth number two had a 0% baseline throughout the study. Youth two did not speak aloud. However, youth two was a diligent participant in therapy. Youth two used the lessons he learned to

identify that his family desired him to stay in the same room with them during family time. The caregivers reported speaking plainly to the youth in his native Spanish language made all the difference to the youth.

Youth three had a 10% initial and 68% final result. Youth hree's exemplary progress at social skills at home and in the community were dreams his mother had long cherished. The caregiver had the chance to watch her son go from actively hiding behind a vending machine, avoiding his peers, to approaching them at the park and asking, "can I play too?"

Youth four maintained an 80% baseline throughout the study. Youth four was fully verbal at the outset. Youth number four did see a marked change in his ability to use sensory stimulation to self-regulate.

Youth five presented with a 40% baseline at the outset and obtained 70% by the end of the study. Through hard work, and many pieces of celery with peanut butter as rewards, youth five grew increasingly able to follow instructions and also to express what he wanted and needed.



Finally, figure six above describes initial and final data in blue and orange, respectively for non-verbal expressive communication.Youth one began at 50% and increased to 90%. By the end of the study, youth one would tease his brother by pretending to punch the latter. The caregiver reported she felt happy youth one could share more of himself with the world. Youth one's brother reported he did not enjoy being "teased".

Youth two started and ended at 10% and 95% respectively. While youth two sometimes pointed at items he wanted at the outset, youth two, sometimes to his mother's consternation, set forth and secured desired items such as cheesy poofs, by the end of the study. It can be noted youth two also spontaneously hugged his beloved mother early and often by the end of the study.

Youth three expressed himself non-verbally 80% of the time throughout the study. It can be noted that initially youth three would express anxiety by climbing on kitchen counters and using cabinet shelves as a ladder to propel himself atop the cabinets into the small space near the ceiling. By the end of the study, youth three no longer used kitchen cabinets to self-soothe, choosing instad to count to ten on his fingers, a coping skill he learned for mitigating anxiety. The caregiver observed that this was a far safer way to reach a cooler calm.

Youth number four, though ahead of his peers at verbal communication at the outset and conclusion of the study, benefitted greatly from work at non-verbal expressive communication. Youth four grew more able to identify facial expressions of others and this opened a world of satisfying communication to youth four.

Youth five saw impressive results, going from 20% to 78% at the respective beginning and end of this study. Youth five benefited greatly from prompting to make eye contact. The youth's willingness provided him with myriad examples of non-verbal communication. The youth used

these to great advantage. For example, to the youth's father's great delight, the youth learned to copy his father, raising only one eyebrow to express a quizzical feeling.

Tuchel (2022) discussed scripting in her work, noting it is a key feature of ASD youth language development. Courchesne, Tesfaye, Mirenda, Nicholas, Mitchell, Singh, Zwaigenbaum, Elsabbagh (2021) observed including youth and their strengths greatly benefits youth self-image and it clearly is crucial to meaningful research where the youth are stakeholders.

Discussion

Stringer (2007) identified action research can be: credible, analyzable, transparent, and useful. In this study, the data are credible in that the youth characteristics of: ethnicity, age, and whether echolalic. Next, the research is analyzable in the following terms: the study reported on the youth communication across verbal/non-verbal expressive/receptive communication during the 1.5 years of treatment using play and sensory therapies.

The study is transparent in that the results are based on youth abilities as tested during sessions. This study can be useful in two ways. First, clinicians can use caregiver identified activities. Second, clinicians can use youth identified rewards, giving youth and families full control for the best chances for success.

Limitations

This study had NUMBER limitations. First, this study did not take into account sleep. For example, Khorshid and Madanifard (2020) observed fewer language issues in ASD youth who had no sleep issues. Second, this study could have included more stakeholders. For example, this study did not include a communication therapist, as did Breiting and Maas (2021). Nor did this study include teachers, as did Cohn, McVilly, Harrison, and Stiegler (2022). Third, Rossignol and Frye (2021) assessed the utility of vitamin B12, but the current study did not assess any of the five youth

for the presence (or absence) of vitamin B12. Sleep, additional professional interventions, and nutrition are important factors, especially in light of the divide between Black and LatinX youth since these groups can be deprived of the best society has to offer.

Conclusion

Echolalia can serve as a valuable launchpoint for youth to work toward verbal/non-verbal expressive/receptive communication Shiri et al., (2020) did a literature survey, observing the best results came from extra-role behavior, or. going beyond expectations. Stringer's (2007) action research scaffolding gave all stakeholders the chance to go beyond expectations. Clinician washed dishes, caregivers learned new nurtured heart parenting skills, youths had the chance to stretch their their communication abilities to be extraordinary. By nurturing echolalia, not pathologizing it, youth can feel exceptional.

Resources

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